

REMARKS

Claims 1-23 are pending. By this amendment, claims 21-23 are added for the Examiner's consideration. Support for the added claims is provided in at least Figures 1 and 2, and the accompanying description. Reconsideration of the rejected claims in view of the below remarks is respectfully requested. This Response is fully responsive and meets the requirements of MPEP §§714.02 and 714.04.

Examiner Interview

Applicant appreciates the courtesies extended to Applicant's representative during the interview held on April 27, 2005. The Examiner, during the interview, indicated that consideration will again be given to the distinguishing features of claims 1, 14 and 20 over the applied prior art. Applicant noted that none of the references, amongst other features, include changing, setting and/or adjusting of current for the normally-open electromagnetic valve to provide the functions as recited in the claims. Applicant further noted that the invention is of a simpler construction, as compared to that of the prior art references. By way of one example, the presently claimed invention does not use nor require a spring in the solenoid part to counter any biasing of the valve opening spring positioned between the valve body and the valve seat member.

The Examiner indicated that further consideration will be given to the arguments and the newly added dependent claims.

Added Claims

Claims 21-23 are added for the Examiner's consideration. Applicants note that these added claims are distinguishable over the applied references. For example, as to the allowability of claim 21, ALAZE does not show that the normally-open electromagnetic valve includes a valve shaft in direct contact with the movable core when the movable core is attracted by the fixed core. Additionally, for example, TAKAYUKI and AKAMATSU show more than one spring associated with the functionality of the normally-open electromagnetic valve.

Objection to the Drawings

The Examiner objected to the drawings because the specification does not adequately describe the relief mechanism 7 and because no relief mechanism is shown in Figs. 1-3. This objection is respectfully traversed.

Applicant has reviewed the drawings, the specification and the features recited in the claims consistent with the Examiner's comments and respectfully submit that no drawing revisions are required. The features recited in the claims are fully described in the specification and shown in the drawing such that one having ordinary skill in the art, after reviewing the specification and drawing would have no difficulty understanding the invention recited in these claims and would not require further illustration thereof.

Applicant notes, in particular, that Fig. 4 designates a relief mechanism 7. The function of the relief valve and its constituent equivalent components are described at page 24 and pages 33-34. In particular, page 24 describes

The normally open type electromagnetic valve 6 has not only a brake fluid pressure maintaining function but also a relief function (7) which, when the brake fluid pressure of the wheel is excessively high, returns brake fluid pressure of the wheel brake (4) to the master cylinder.

At pages 33-34, describes the relief mechanism as follows:

However, when the brake fluid pressure of the wheel brake (4) is higher than the brake fluid pressure of a given value to be set by the above-mentioned attracting force, the valve body (32) is separated from the valve seat (28) by this high brake fluid pressure against the attracting force to thereby open the valve hole (27), so that the normally-open-type electromagnetic valve (6) is opened. Therefore, the brake fluid pressure of the wheel brake (4) is returned through the valve hole (27) to the master cylinder (2), thereby causing the brake fluid pressure of the wheel brake (4) to lower.

Accordingly, Applicant submits that the relief mechanism is clearly described in the specification, and represented in the drawings. Applicant has clearly shown to the Examiner the equivalent features of element 7 in both the drawings and the specification. Applicant thus requests the Examiner to reconsider and withdraw the objection to the drawings and indicate that the drawings are acceptable.

Rejections under 35 U.S.C. 103(a)

Claims 1-3, 8, 11-17, 19 and 20 are rejected under 35 U.S.C. 103(a) over USPN 5,167,442 to ALAZE et al. in view of WO 95/19282 to HALL and USPN 6,086,515 to BUSCHMANN et al. Claims 4-7 and 18 are rejected under 35 U.S.C. 103(a) over ALAZE et al. in view of HALL, BUSCHMANN et al., and USPN 5,771,933 to AKAMATSU et al. Claims 1-

3, 8, 11-17, 19 and 20 are rejected under 35 U.S.C. 103(a) over JP 2001225731 to TAKAYUKI et al. in view of HALL and BUSCHMANN. Claims 4-7, 10-13 and 18 are rejected under 35 U.S.C. 103(a) over JP 2001225731 to TAKAYUKI et al. in view of HALL and BUSCHMANN et al., and further in view of USPN 5,771,933 to AKAMATSU et al. These rejections are respectfully traversed.

Rejection over Alaze with
Hall and Buschmann

In view of the discussion during the interview, Applicant submits that the valve of ALAZE has a return spring that biases a moveable valve so that the movable core is normally apart from the valve seat. ALAZE further discloses a normally-open electromagnetic valve arranged between a master cylinder 11 and a wheel brake 14. The valve includes a fixed part 33 and a movable part 59. ALAZE further discloses that a current can be supplied to the coil (col. 4, lines 17-19 and 48-50); however, the Examiner presumes that the valve of ALAZE can work in the manner of the claimed invention. This is not correct, as discussed during the interview, nor is this contemplated by ALAZE, especially in view of its structure.

HALL discloses a traction slip control. In the embodiments shown in Hall, even though a driver does not treadle a brake pedal, an isolation valve 32 is closed and a pump 30 is driven to generate brake pressure to thereby transmit the brake pressure to wheel brake 20. In this state, when the brake pressure increases more than the required pressure, the brake pressure is relieved by controlling the applying current to a solenoid of the isolation valve 32. The valve is disclosed as being supplied with a preselected average value current in order to control the isolation valve (page 7, lines 10-28). Contrary to this, in the presently claimed invention, when a driver treadsles

the brake pedal to actuate the brake, the electromagnetic vale is actuated to maintain the brake pressure and thereafter, controlling the applying the current to the solenoid to thereby gradually reduce the brake pressure.

BUSCHMANN discloses valves 3-10 arranged between a master cylinder and wheel brakes. BUSCHMANN specifically discloses, on col. 3, lines 46-47, that the braking system operates on the basis of two switch positions, but fails to disclose or suggest an adjustable current. Applicant thus submits that BUSCHMANN does not disclose or suggest that the valve can perform the above noted functions of claims 1, 14 or 20.

Furthermore, Applicant submits that dependent claims 2, 3, 8, 11-13, 15-17 and 19 are allowable at least for the reason that these claims depend from allowable base claims and because these claims recite additional features that further define the present invention. In particular, Applicant submits that no proper combination of ALAZE, HALL and BUSCHMANN discloses or even suggests for example, reducing the value of the current to the coil to gradually reduce the attracting force (claims 2 and 3).

The Examiner is of the opinion, though, that it is well known to vary the forces acting on the valve such as, in ALAZE by varying the spring rate of the biasing spring 40 or applied current. Applicant submits that Examiner is using impermissible hindsight reasoning based on Applicant's own disclosure. It would appear, only after reading Applicant's disclosure, can the Examiner conclude that ALAZE can show varying the spring rate of the biasing spring 40 or applied current when, in fact, ALAZE makes no reference to such features.

Additionally, in the portion of the rejection of claims 2 and 3 (and 15 and 16), the Examiner does not even address the features of such claims, e.g., gradually reducing the attracting force. The Examiner, instead, notes that the features of claims 2 and 3 are well known, without providing any basis for such conclusion. Simply, none of the applied references, alone or in combination show or suggest gradually reducing the attracting force of the coil. In fact, only HALL shows the use of a preselected current value, which is not the same or equivalent to reducing gradually the attracting force of the coil.

Applicant requests that the Examiner reconsiders and withdraws the rejection of the above-noted claims under 35 U.S.C. 103(a).

*Rejection over Takayuki
with Hall and Buschmann*

Much like ALAZE, TAKAYUKI has a return spring that biases a movable valve so that the movable core is normally apart from the valve seat. TAKAYUKI discloses a normally-open electromagnetic valve arranged between a master cylinder and a wheel brake and that the valve includes a fixed part and a movable part. As discussed in the background section of the present application, TAKAYUKI shows a very large amount of parts to be adjusted in order to provide the needed functions of the valve. Also, it is known in this type of system that the flow quantity cannot be predicted in each of the systems, and that the brake fluid must be actually made to flow in order to check the flow quantity of the brake fluid, which limits the enhancement of productivity. It is only after realizing these shortcomings and after extensive examination of the problem, did Applicant specifically avoid the above problems and realize the claimed invention.

As above, Applicant submits that TAKAYUKI in combination with HALL and BUSCHMANN does not disclose or suggest that the features of the claimed invention. Additionally, Applicant submits that there is no motivation to modify TAKAYUKI in view of HALL and BUSCHMANN or in a manner which would render obvious Applicant's invention. It would appear that the Examiner, only after reading and understanding Applicant's disclosure and the shortcomings addressed and solved by the claimed invention, has the Examiner achieved claimed invention with a suggestion of the combination of the references. This is impermissible.

Applicant requests that the Examiner reconsiders and withdraws the rejection of the above-noted claims under 35 U.S.C. 103(a).

*Rejection of Dependent
Claims 4-7, 10-13 and 18*

Applicant submits that the remaining dependent claims are allowable at least for the reason that these claims depend from allowable base claims.

Applicant requests that the Examiner reconsiders and withdraws the rejection of the above-noted claims under 35 U.S.C. 103(a) for all of the claims.

CONCLUSION

In view of the foregoing, it is submitted that none of the references of record, either taken alone or in any combination render obvious the claimed invention, as recited in each of the pending claims. The applied references of record have been discussed and distinguished, while significant claimed features of the invention have been pointed out. Accordingly, reconsideration of the outstanding Office Action and allowance of the present application and all the claims therein are respectfully requested and now believed to be appropriate. Authorization is hereby given to refund excess payments and charge any additional fee necessary to have this paper entered to Deposit Account No. 19-0089.

Respectfully submitted,
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